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09/873,115	05/31/2001	Klaus Kronenberg	4709US	1681

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EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 04/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,115

Applicant(s)

KRONENBERG ET AL.

Examiner

HANH NGUYEN

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 22-29, 31, 32 and 34-43 is/are rejected.
- 7) ☒ Claim(s) 30 and 33 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features in claims 23 "the rotor either load the first and second elastic thrust ring (1a, 1b) continuously" and "two crossing coil" in claim 38 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. OK

The drawings are objected to because they fail to show rotor (4) as described in the specification and in claims 22,23,25,30,31,35 and they fail to show the axial stop (20) in claim 32. OK

The drawings are objected to because ref. sign (19) refers to a gap in the drawing number 4 while in the drawing number 3 it refers to a metal ball, reference sign (14) in drawing 3 is not shown in the specification. OK

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: reference number 19 refers to a stop in Page 6, line 16, is used to refer to capillary gap in line 23. In line 3, Page 1 "a rotor shaft and being mounted" should be "a rotor shaft being mounted". In claim 23, line 4 "the first or second elastic thrust ring" should be "the first and second elastic thrust ring" OK

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 29,37-40 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitations "winding body", "crossing coil" and "angle of individual coil" were not described clearly in Page 3, paragraphs 5-7; the limitation "a bearing disk" in claim 29 was not described in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 31 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 31, there is no antecedent basis for "the indentation 8"

Regarding claim 43, there is no antecedent basis for "the recess 14"

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22,23,27,28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Blaettner et al.

Regarding claim 22, the applicant's admitted prior art show an electric motor having a stator and a rotor, with the rotor having at least one permanent magnet and one rotor shaft and with the stator having at least two coils which produce a rotating magnetic field when alternating currents flow through said two coils, by which the rotor is drivable, and the rotor shaft is mounted radially and axially (Page 1, lines 10-18 in the specification).

The applicant's admitted prior art fails to show an electric motor wherein the rotor (4) is mounted by at least one elastic thrust ring (1a, 1b), with a first thrust ring (1a) being arranged axially on one side of the rotor (4).

However, Blaettner et al. discloses an electric motor wherein the rotor (28) is mounted by at least one elastic thrust ring (162 in Fig. 1,2 and Col. 17, line 62-63), with a first thrust ring (162) being arranged axially on one side of the rotor (28) for the purpose of supporting thrust bearing.

Since the applicant's admitted prior art and Blaettner et al. are in the same field of endeavor, the purpose disclosed by Blaettner et al. would have been recognized in the pertinent art of the applicant's admitted prior art.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art by inserting

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a elastic thrust ring axially on one side of the rotor as taught by Blaettner et al. for the purpose of supporting thrust bearing.

Regarding claim 23, Blaettner et al. also show the electric motor wherein a second thrust ring (162) is arranged on another side of the rotor (28), and the rotor loads the first and second thrust ring (162) alternately (between the rotor) for the purpose of supporting thrust bearing.

Regarding claim 27 and 28, Blaettner also show the electric motor wherein a lubricant is provided in the thrust rings (provided by oil slinger 160 facing thrust ring 162) and the oil inherently has low viscosity so that it can migrate back and forth between the oil slinger and the bearing 60 (Col. 17, lines 34-51) for the purpose of reducing friction.

6. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Blaettner et al. and further in view of Siemens (8624050).

Regarding claim 24, the applicant's admitted prior art and Blaettner et al. show all limitations of the claimed invention except showing the electric motor wherein the thrust rings comprise a rubber-like plastic matrix to one side of which microfibers are applied.

However, Siemens discloses the electric motor wherein the thrust ring comprise a plastic ring (2 in Fig. 1) and one elastic damping layer (1) is applied to one side for the purpose of reducing vibration.

Since the applicant's admitted prior art and Blaettner et al. and Siemens are in the same field of endeavor, the purpose disclosed by Siemens would have been recognized in the pertinent art of the applicant's admitted prior art and Blaettner et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art and Blaettner et al. by making a plastic ring with a rubber-like plastic to one side and apply microfibers on it to form an elastic damping layer as taught by Siemens for the purpose of reducing vibration.

Regarding claim 25 and 26, Siemens also show the electric motor wherein the side with the microfibers (elastic damping layer) faces the rotor and the microfibers are distributed stochastically (inherent) for the purpose of reducing vibration.

7. Claims 29, 31-32, 34, 37,41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Blaettner et al. and further in view of Eheim (22 64 934).

Regarding claim 29, the applicant's admitted prior art and Blaettner et al. show all limitations of the claimed invention except showing the electric motor wherein at least the first thrust ring (1a) is arranged in a recess (14) in the stator.

However, Eheim discloses the electric motor wherein at least the first thrust ring (elastic bearing 30) is arranged in a recess (the space which accommodate elastic bearing 30) in the stator for the purpose of creating a radial bearing.

Since the applicant's admitted prior art and Blaettner et al. and Eheim are in the same field of endeavor, the purpose disclosed by Eheim would have been recognized in the pertinent art of the applicant's admitted prior art and Blaettner et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art and Blaettner et al. by forming a recess in the stator to accommodate the thrust ring as taught by Eheim for the purpose of creating a radial bearing.

Regarding claim 31, Eheim also shows the recess (the space which accommodate elastic bearing 30) is in the form of truncated cones for the purpose of accommodating the elastic ring.

Regarding claim 32, Eheim also shows the stator (8) has an axial stop (between ref. sign 8 and 30 in Fig. 1) and wherein by said axial stop an axial movement of the rotor shaft is limitable by said axial stop when additional components are mounted on the rotor shaft for the purpose of creating a thrust bearing.

Regarding claim 34, Eheim also shows the electric motor wherein the rotor shaft is polished in a radial bearing region (inherent because the friction between the shaft and the bearing 30 should be minimum) for the purpose of improving efficiency of the motor.

Regarding claim 37, Eheim also shows the electric motor wherein the stator is in the form of winding body (6,8) for the purpose of housing the winding.

Regarding claim 41, Eheim also shows the electric motor wherein the impeller (37 in Fig. 1) is mounted on the rotor shaft (intended use, patentable weight not given).

Regarding claim 42, Eheim also shows the electric motor wherein the impeller is pressed into the shaft (intended use, patentable weight not given).

8. Claims 35,36,39,40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Blaettner et al. and further in view of Ikegami et al.

Regarding claim 35, the applicant's admitted prior art and Blaettner et al. show all limitations of the claimed invention except showing the electric motor wherein the rotor has a permanent magnet embedded in a magnet mounting.

However, Ikegami et al. disclose the electric motor wherein the rotor has a permanent magnet (113) embedded in a magnet mounting (114a and 114b) for the purpose of creating magnetic flux.

Since the applicant's admitted prior art and Blaettner et al. and Ikegami et al. are in the same field of endeavor, the purpose disclosed by Ikegami et al. would have been recognized in the pertinent art of the applicant's admitted prior art and Blaettner et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art and Blaettner et al. by forming a rotor with a permanent magnet embedded in a magnet mounting as taught by Ikegami et al. for the purpose of creating magnetic flux.

Regarding claim 36, Ikegami et al. also show the electric motor wherein said electric motor has a rotationally symmetrical magnet (disk shape) which is rigidly connected to the rotor shaft for the purpose of creating magnetic flux.

Regarding claim 39, Ikegami et al. also show the electric motor wherein said the alternating currents in individual of said coils have a phase separation which corresponds to an angle of the individual coils with respect to one another (because the alternating currents are different in phase) for the purpose of creating magnetic flux.

Regarding claim 40, Ikegami et al. also show the electric motor wherein the alternating current is sinusoidal (inherent when alternating current is used in motor) for the purpose of creating magnetic flux.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Blaettner et al. and Eheim and further in view of Ikegami et al.

Regarding claim 38, the applicant's admitted prior art, Blaettner et al. and Eheim show all limitations of the claimed invention except showing the electric motor wherein at least two crossing coils are mounted on the winding body.

However, Ikegami et al. disclose the electric motor comprise a three-phase six-pole stator (Col. 3, line 47-48) which is interpreted by examiner as having at least two crossing coils for the purpose of creating magnetic flux.

Since the applicant's admitted prior art, Blaettner et al., Eheim and Ikegami et al. are in the same field of endeavor, the purpose disclosed by Ikegami et al. would have been recognized in the pertinent art of the applicant's admitted prior art Blaettner et al. and Eheim.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify the applicant's admitted prior art, Blaettner et

al. and Eheim by forming a rotor with a permanent magnet embedded in a magnet mounting as taught by Ikegami et al. for the purpose of creating magnetic flux.

Allowable Subject Matter

10. Claims 30,33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 43 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if it can overcome 112 matter.

11. The following is a statement of reasons for the indication of allowable subject matter: the record of prior art does not show an electrical machine with elastic rings for bearing purpose wherein the rotor of the machine has an indentation in form of truncated cones to accommodate the ring and a capillary gap for holding lubricant is provided between the rotor and the stator of the machine.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

April 10, 2002



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